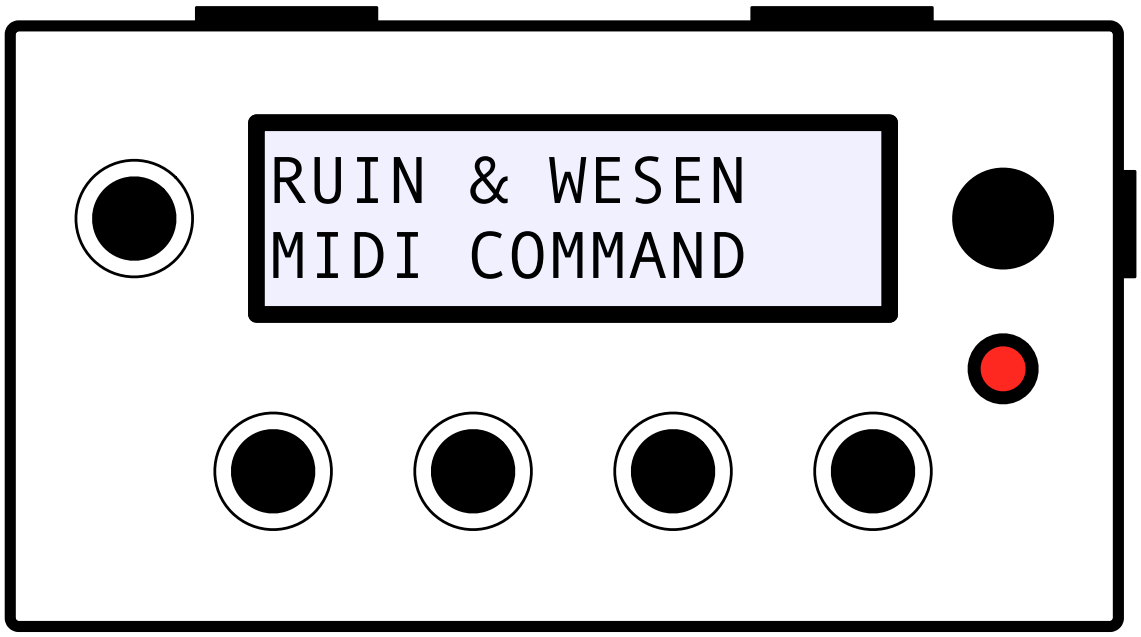

User manual

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Midi Command

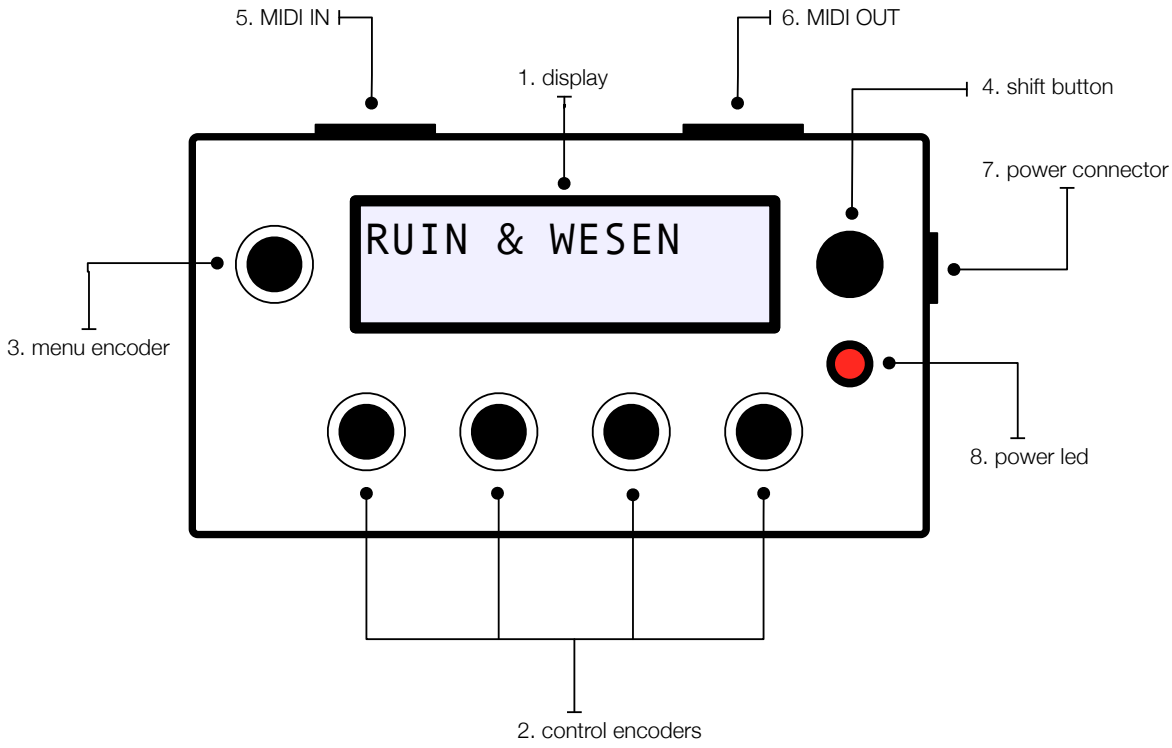
Introduction

Thank you for choosing the Ruin & Wesen Midi Command. The Midi Command is a flexible MIDI controller designed to be small and easy to use. It is especially designed for users of the Elektron Machinedrum synthesizer, as it can directly control the parameters of it's 4 effects. This document describes how to use the Midi Command to control other musical gear, how to edit its settings, and how to control Ableton Live with the Midi Command. It also describes the SYSEX commands supported by the device, and how to load new firmware on the device. Finally, the electronic hardware of the Midi Command is described, allowing you to design your own firmware.

We provide a one-year warranty covering all malfunctions occuring from normal use. Damage caused by abusive handling is not covered. Please contact us before returning a device for repair. Shipping to Ruin & Wesen is covered by the customer, shipping from Ruin & Wesen is covered by Ruin & Wesen.

Midi Command User Interface

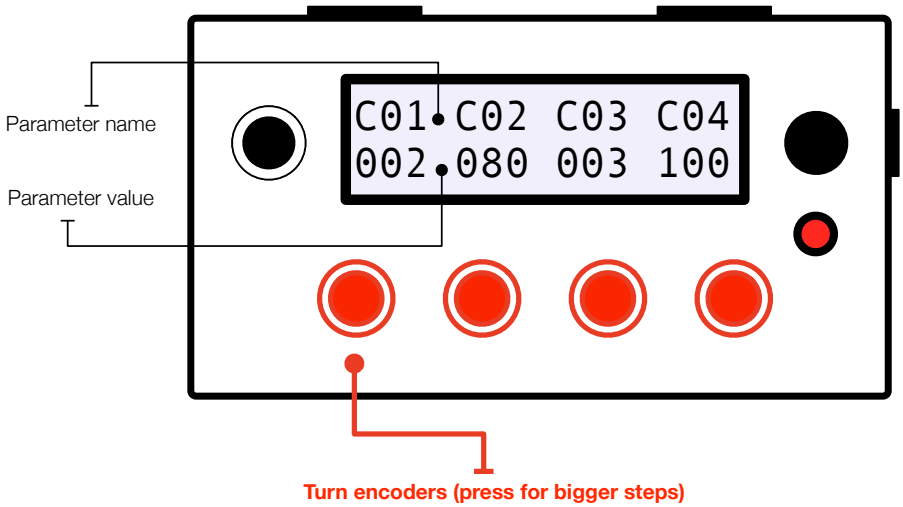
The Midi Command features a LCD display (1), 4 control encoders (2), a menu encoder (3) and a shift button (4). It also has a MIDI IN connector (5), a MIDI OUT connector (6), a power supply connector (7), and a power indicator LED (8). The 4 control encoders are used to send MIDI control parameters, as well as to set values while editing the settings of the MIDI Command. The menu encoder is used as a macro knob in normal operation (for more information see the section Macro Knob). The shift button is used to access additional functions in order to switch pages, change patches, access the editing functions and to set secondary settings.



Midi Command User Interface

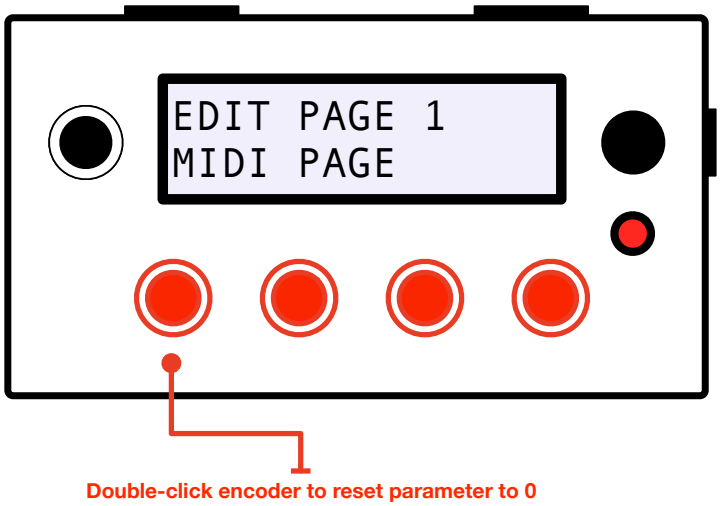
Midi Command basic operation

To use your Midi Command, hook up a device that you want to control by connecting the MIDI OUT port (6) of the Midi Command to the MIDI IN port of the device you want to control. Power up the Midi Command by plugging in the power supply into the power supply connector (7). The power indicator LED (8) will light up, and the display (1) will show the company logo “RUIN AND WESEN”. After a short amount of time, the Midi Command will show the parameters values for the first page of the first patch. The upper line of the display shows the parameter names, while the lower line shows the current parameter value.



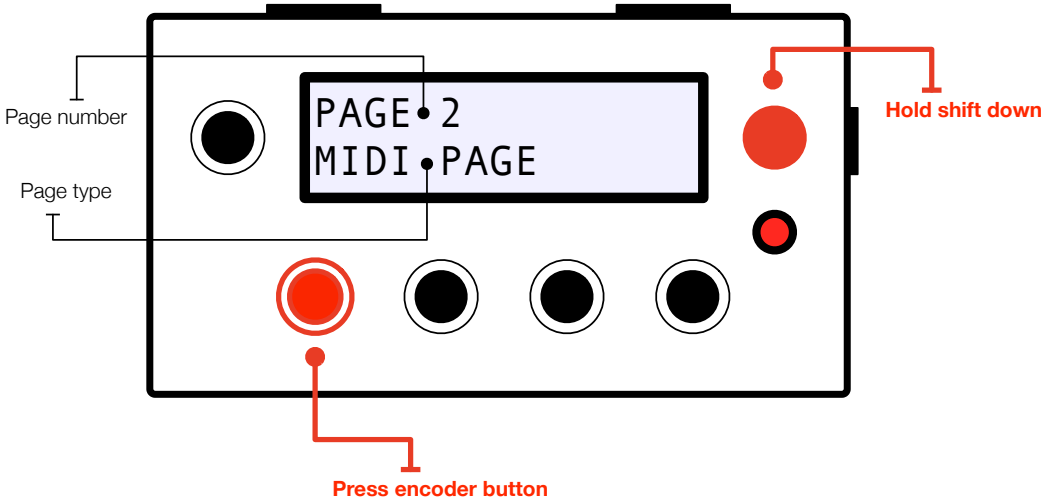
Changing parameters

You can adjust the parameters of the current page by turning the control encoders (2). Each parameter can go from 0 up to 127. Pressing a control encoder and turning it will make the values increment or decrement faster (by an amount of 5 instead of 1). This is similar to the push-turn functionality of the Elektron machines. Double clicking a control encoder will reset the value of the parameter to 0. Be careful not to turn the encoder while double-clicking it because this will cancel the double-click. Turning the menu encoder (3) will activate the macro knob feature, which is describe in more detail in the section Macro Knob.



Resetting a parameter to 0

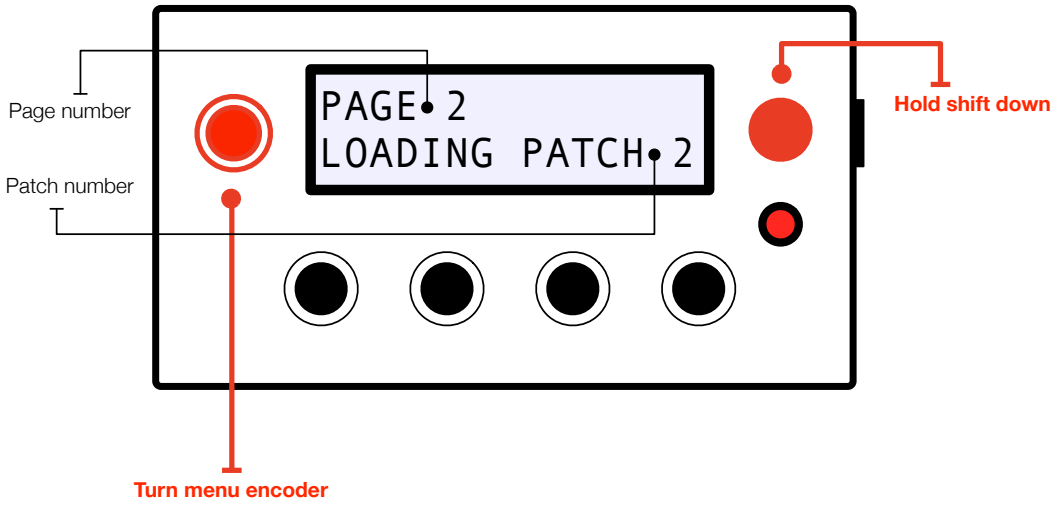
The Midi Command can store 8 patches, where each patch is made of 4 parameter pages. Each parameter page is a grouping of 4 MIDI parameter that can be controlled using the 4 control encoders (2). To switch pages, press the shift button (4) and hold it down, then press one of the control encoders (2). Be careful not to turn the control encoder while turning it, as this will cancel the press. The display will display the number of the new page, as well as the page type, for a short amount of time, and then show the parameter values of the new page. The control encoders now control the values of the new page.



Switching pages

To switch the current patch, press the shift button (4) and turn the menu encoder (3). Be careful not to press the menu encoder while turning it, as this will cancel the turn. The display will show the number of the newly loaded patch for a short amount of time, as well as the number of the current page, and will then show the values of the parameters of the

new current patch. You can then adjust the parameters using the control encoders (2), and switch pages as described in the paragraph above.

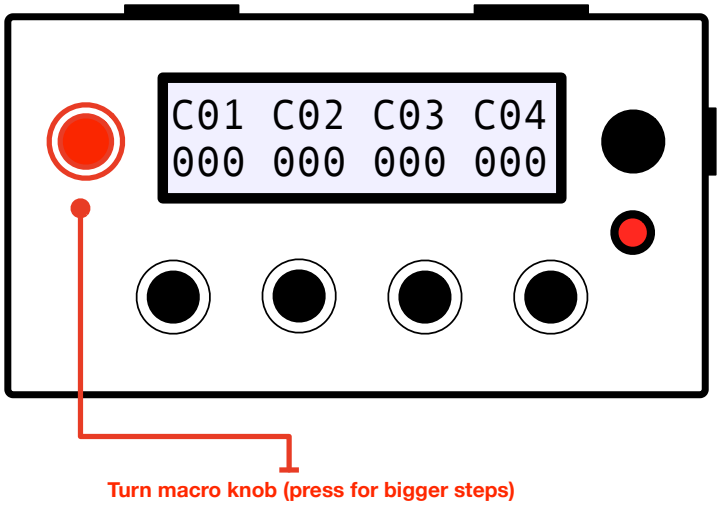


Switching patches

The factory patches of the MIDI Command are described in the appendix “Factory patches”.

Macro Knob

Each parameter page features 4 parameters that can be directly controlled using the control encoders (2). In addition to these 4 encoders, the Midi Command features a Macro Knob that is controlled by turning the menu encoder. The Macro Knob allows you to modify the 4 page parameters by twisting a single knob. You can adjust the range inside which each page parameter is modified by editing the Macro Knob settings (see the section Macro Knob Settings below). You can set the lower boundary and upper boundary for each parameter independently. For example, you could configure the Macro Knob to modify the first parameter from 30 to 60, the second parameter from 60 to 30, the third parameter from 0 to 127 and the fourth parameter from 127 to 0.



Macro Knob

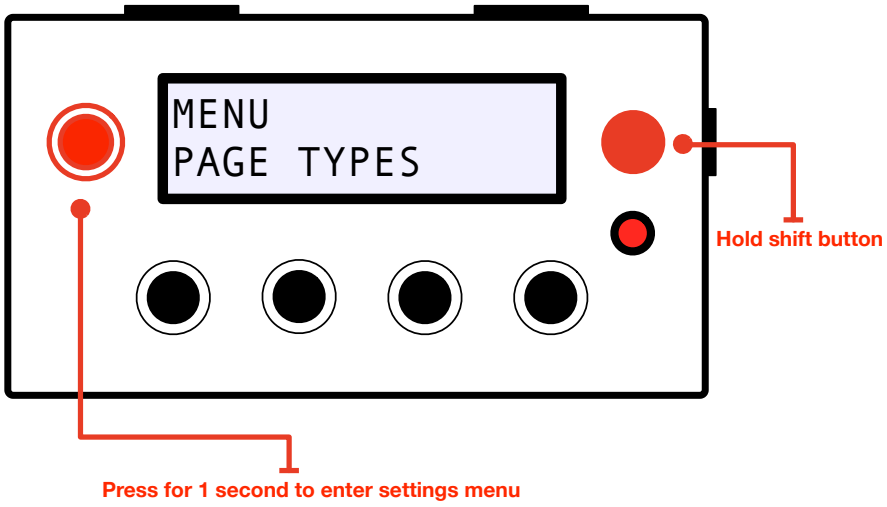
Turning the menu encoder (3) to set the Macro Knob to 0 will set the first parameter to 30, the second parameter to 60, the third parameter to 0 and the fourth parameter to 127. Gradually turning the menu encoder to the right will change the value of the first parameter from 30 to 60, the value of the second parameter from 60 to 30, the third parameter will follow the Macro Knob exactly, and the fourth parameter will be the inverse of the Macro Knob value. You can also double-click the menu encoder to set the Macro Knob to 0, thus resetting all the 4 parameters to a default value.

Using the Macro Knob, you can achieve drastic sound modifications at the twist of a single knob.

The Macro Knob can also be used to send two different relative CCs. This way, stepping through software menus or other relative CC functions can easily be reached from each page. This is especially useful for scrolling through tracks in scenes in a program like Ableton Live.

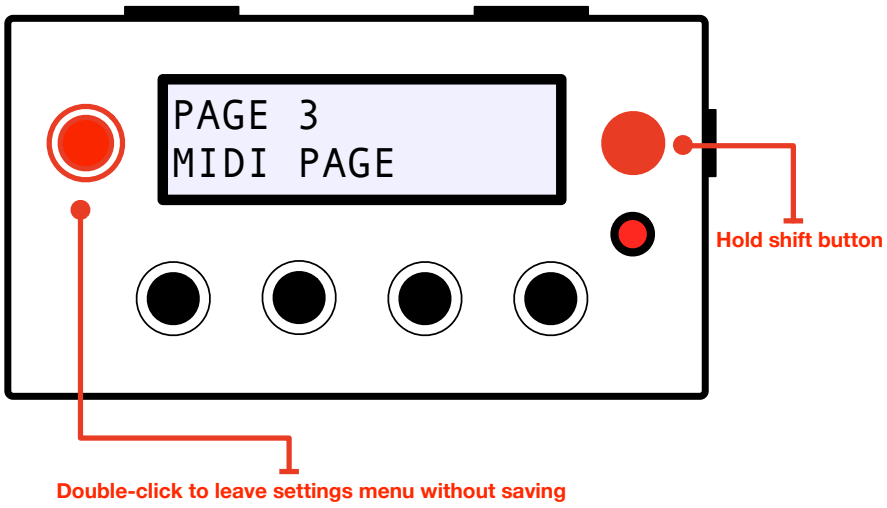
Midi Command settings

To edit the settings of the Midi Command, press the shift button (4) and hold it down, and while keeping it down, hold the menu encoder (3) down. After approximately 1 second, the Midi Command will enter the settings menu. The settings menu edits the settings of the current patch.



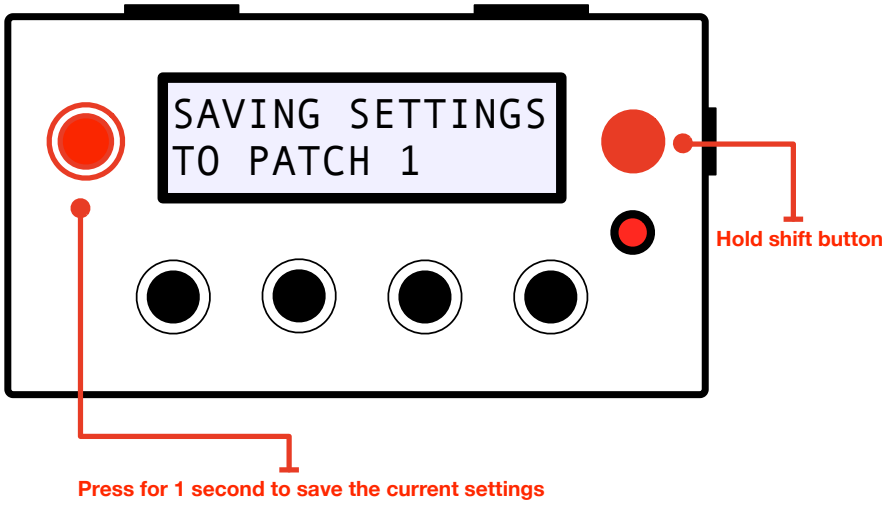
Entering the Settings menu

To change the edited patch, hold the shift button (4) down and turn the menu encoder (3). The changes to the current patch settings will not be saved when loading a new patch. To exit the settings menu without saving the settings, hold



Leaving the settings menu without saving

the shift button (4) down and double-click the menu encoder (3). The Midi Command will go back to the current page. To exit the settings menu and save the settings, hold the shift button (4) down and press the menu encoder (3) for about 1 seconds. The Midi Command will save the modifications made to the current patch and go back to the current page.



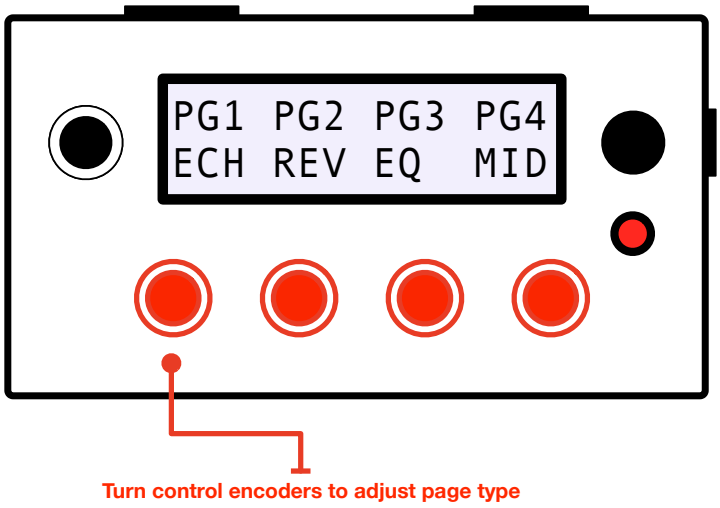
Saving the current settings

The settings menu is composed of a number of submenus which can be accessed by pressing the different encoders. The following diagram shows how the submenus are organized.

Page type submenu

The Page Types menu is used to set the “type” of the 4 pages of the current patch. Each page can be of one of the following types:

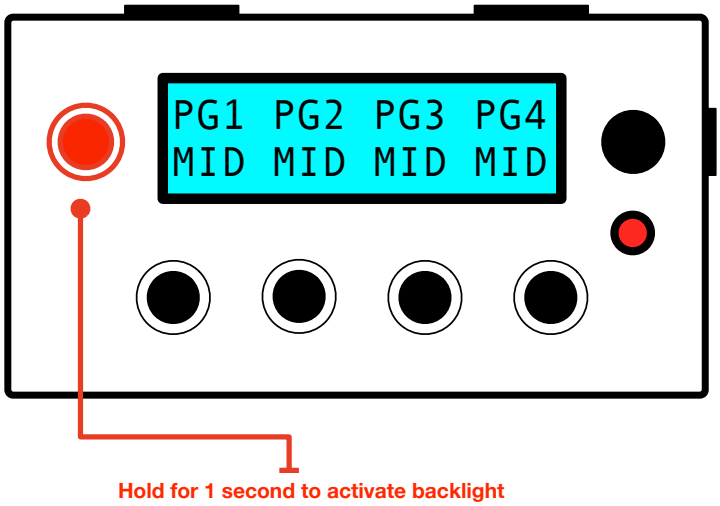
- MID Type: MIDI page type. The encoders send MIDI CC messages. The channel and number of the CC message can be configured.
- ECH Type: Machinedrum DELAY page type. The encoders send SYSEX messages used to control the Delay effect of the Elektron Machinedrum. The parameter of each encoder can be configured.
- REV Type: Machinedrum REVERB page type. The encoders send SYSEX messages used to control the Reverb effect of the Elektron Machinedrum. The parameter of each encoder can be configured.
- EQ Type: Machinedrum EQUALIZER page type. The encoders send SYSEX messages used to control the Equalizer effect of the Elektron Machinedrum. The parameter of each encoder can be configured.
- DYN Type: Machinedrum DYNAMIX page type. The encoders send SYSEX messages used to control the Compressor effect of the Elektron Machinedrum. The parameter of each encoder can be configured.



Changing page types

The type of each page can be adjusted by turning the corresponding control encoder (2). The new type will be displayed on the display. Changing the type of a page will reset the parameters values to the default values. Be careful when changing the types of a page (you can always cancel the change by holding shift down and double-clicking the menu encoder to leave the Settings mode).

You can also activate or deactivate the display backlight while in the page type submenu. Hold the menu encoder down

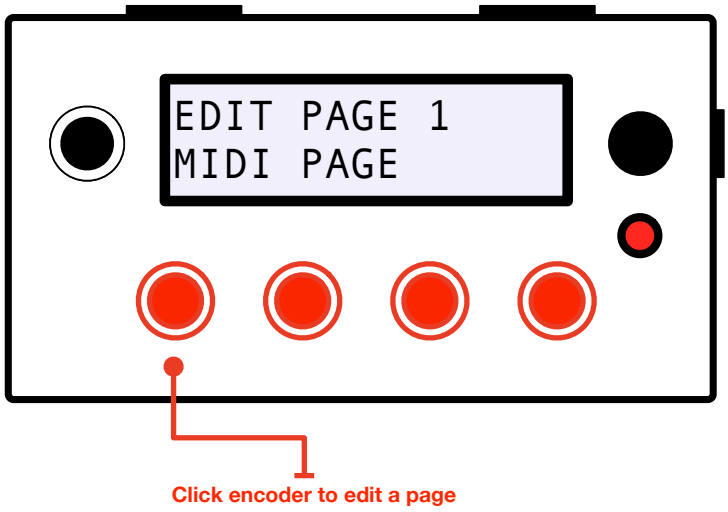


Toggling the LED backlight

for 1 second to toggle the LED backlight.

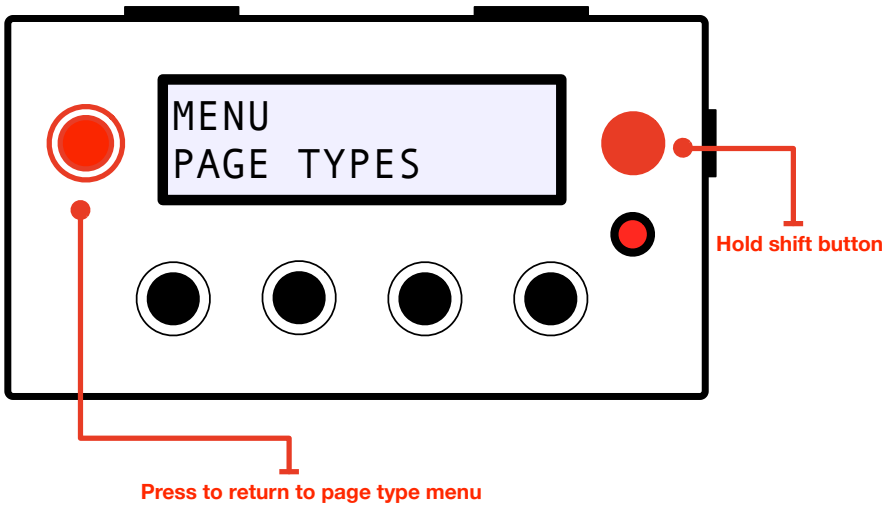
Page settings menu

To edit the settings of an individual page, press the control encoder (2) corresponding to the page. The display will show the settings for the selected page.



Edit an individual page

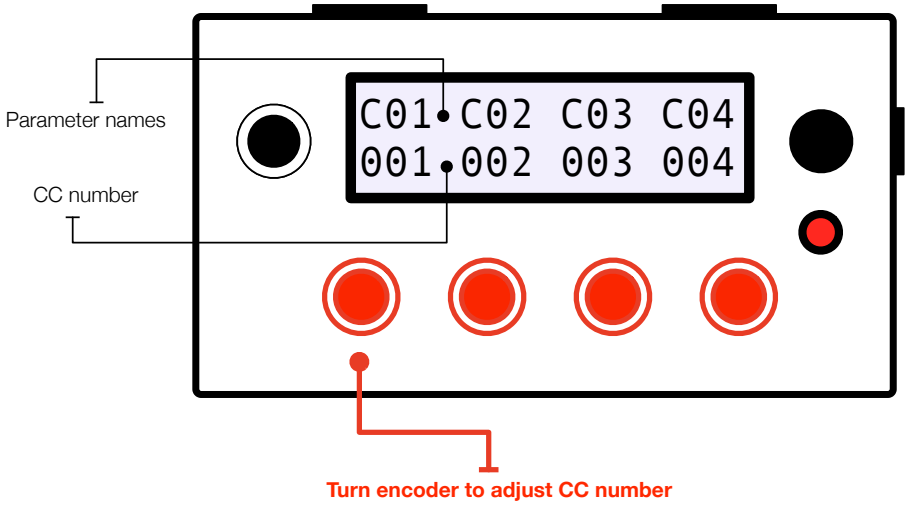
To go back to the page type submenu, hold the shift button (4) down and press the menu encoder (3).



Return to page type menu

MID type page settings

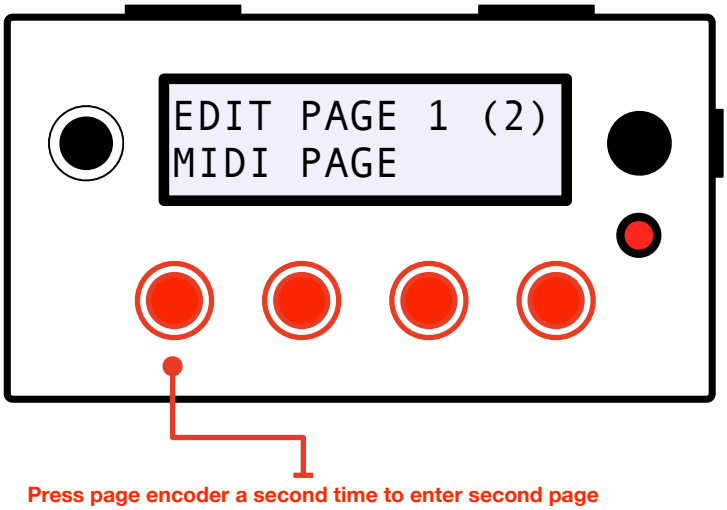
MID type pages have two settings pages. The first page shows the name of the parameter on the first line of the display, and the selected CC value on the second line. To change the CC value, turn the encoder corresponding to the



Edit MIDI page CC numbers

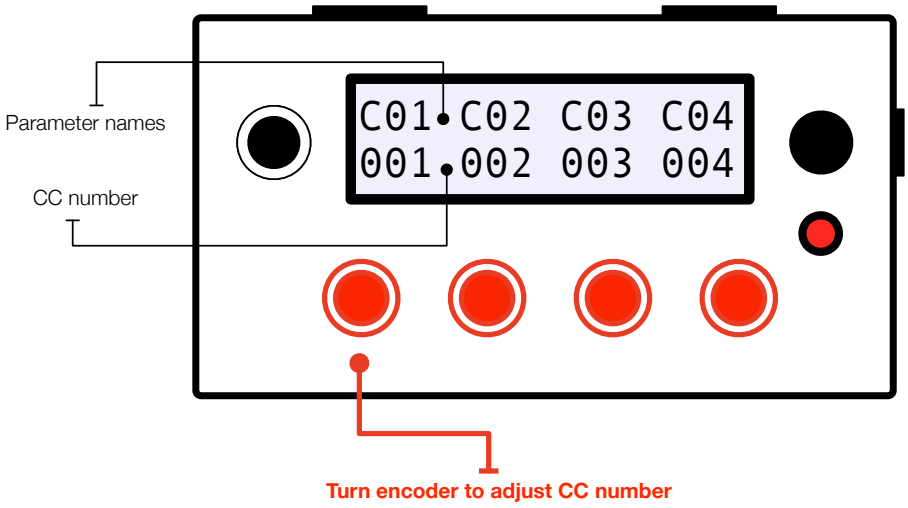
parameter. Be careful not to press the encoder as this will change the edited page.

Pressing the encoder corresponding to the selected page again will switch to the second MID type settings page.



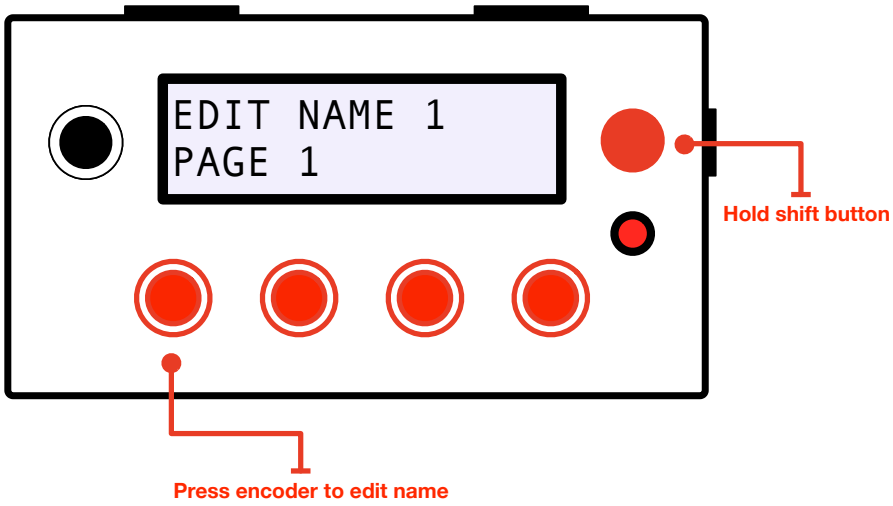
Editing second MIDI page

The second page shows the name of the parameter on the first line of the display, and the MIDI channel of the CC message on the second line. To change the MIDI channel, turn the encoder of the corresponding parameter. Be carefu not to press the encoder as this will change the edited page.



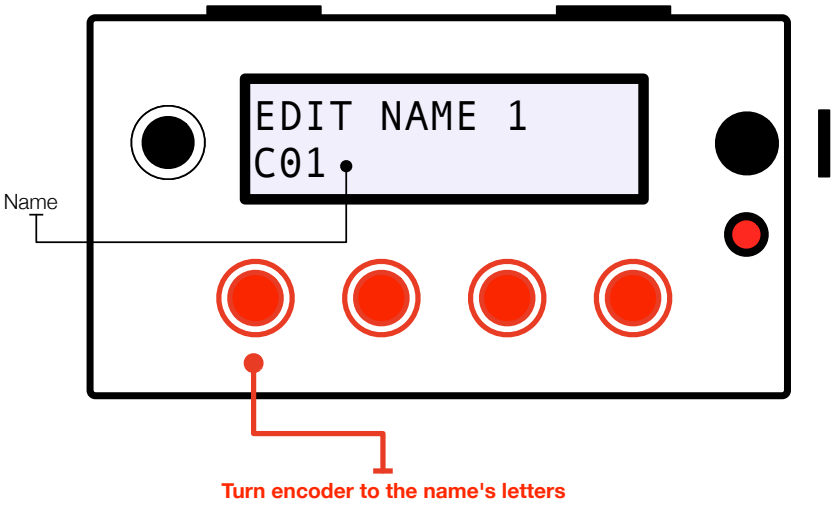
Edit MIDI page MIDI channels

To edit the name of a parameter, hold the shift button (4) and press the corresponding control encoder (2).



Edit MIDI parameter name

The name edit menu shows the number of the selected parameter on the first line and the name of the parameter on the second line. Each name can have up to 4 characters. It is recommended to leave the last character empty to separate the names of the parameters on the display. Turn the 4 control encoders (2) to edit the individual characters of the

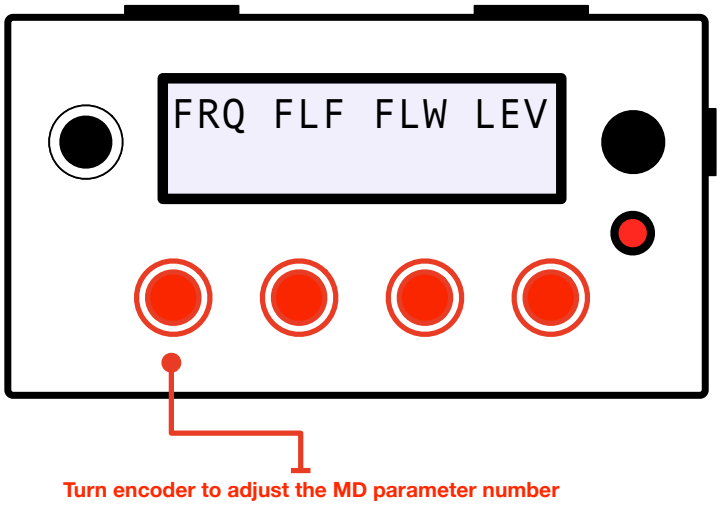


Edit MIDI parameter name

parameter name. Once the parameter name is edited, hold the shift button down and press the control encoder corresponding to the edited parameter again to exit the name edit menu and return to the MID page settings menu. If you want to edit another name, you can hold the shift button down and press the encoder corresponding to the parameter you want to edit to go directly to another name edit menu.

Machinedrum type page settings (ECH, REV. EQ, DYN)

The machinedrum type page settings are much simpler than the MID type page settings. You can chose the selected effect parameter for each encoder by turning the respective encoder.



Editing Machinedrum pages

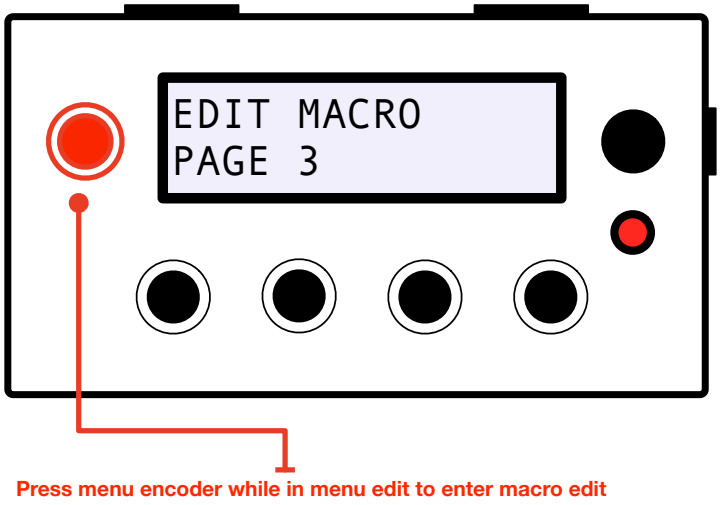
The different parameters are:

- ECH page:

    - TIM: delay time
    - MOD: delay time modulation amount
    - FRQ: delay time modulation frequency
    - FB: delay feedback
    - FLF: delay filter frequency
    - FLW: delay filter width
    - MON: stereo width parameter
    - LEV: delay level
- REV page:
    - DVL: delay send volume
    - PRE: pre-delay time
    - DEC: reverb decay time
    - DMP: reverb damping amount
    - HP: highpass frequency
    - LP: lowpass frequency
    - GAT: gate threshold
    - LEV: reverb level
- EQ page:
    - LP: low filter frequency
    - LG: low frequency gain
    - HP: high filter frequency
    - HG: high frequency gain
    - PF: bandpass filter frequency
    - PG: bandpass filter gain
    - PQ: bandpass filter resonance
    - LEV: EQ level
- DYN page:
    - ATK: compressor attack time

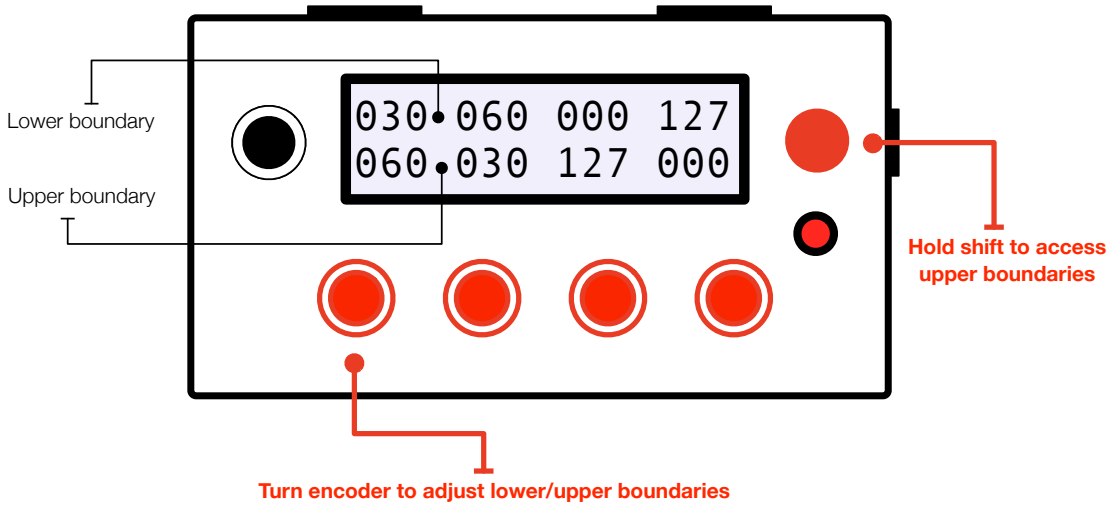
- REL: compressor release time
- THR: compressor threshold level
- RTO: compressor ratio
- KNE: compressor knee setting
- HP: compressor highpass filter frequency
- LEV: compressor output level
- MIX: dry/wet signal mix

Macro Knob settings



Accessing the Macro edit page

To access the macro knob settings for one of the four pages, enter the page settings menu as described above, and press the menu encoder (3).


Lower boundary
Upper boundary
030 060 000 127
060 030 127 000
Hold shift to access upper boundaries
Turn encoder to adjust lower/upper boundaries

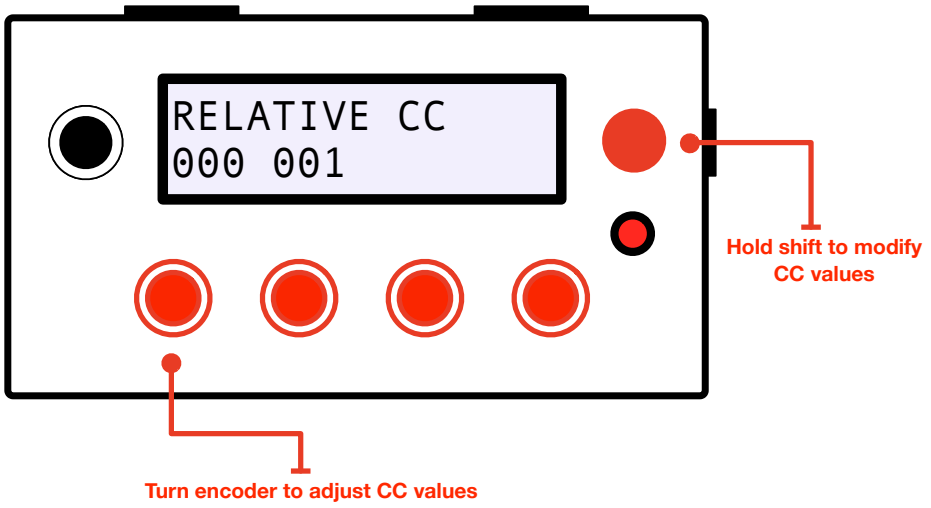
Editing macro boundaries

The display will show the number of the edited macro page, and will then show the macro knob settings menu. The upper line displays the lower boundary for each of the 4 parameters, while the lower line displays the upper boundary for each of the 4 parameters. To adjust the lower boundary of a parameter, turn the corresponding encoder. You can also press-turn the corresponding encoder to adjust the lower boundary value by bigger steps. To adjust the upper boundary of a parameter, hold the shift button (4) down and turn the corresponding encoder. While holding the shift button down, you can also press-turn the corresponding encoder to adjust the upper boundary value by bigger steps.

Setting the same lower and upper boundary value will disable macro for this parameter (turning the macro knob won't affect the current value of the parameter).

Using the Macro Knob to send relative CCs

Setting a lower boundary of 128 for the first encoder activates the relative CC mode of the Macro Knob. When the Macro Knob is set to relative CC, it sends out 2-bits complement Relative CC messages, which are recognized by softwares like Ableton Live. You can set two CC values for the relative CC mode using the shift button and the first and second encoders.



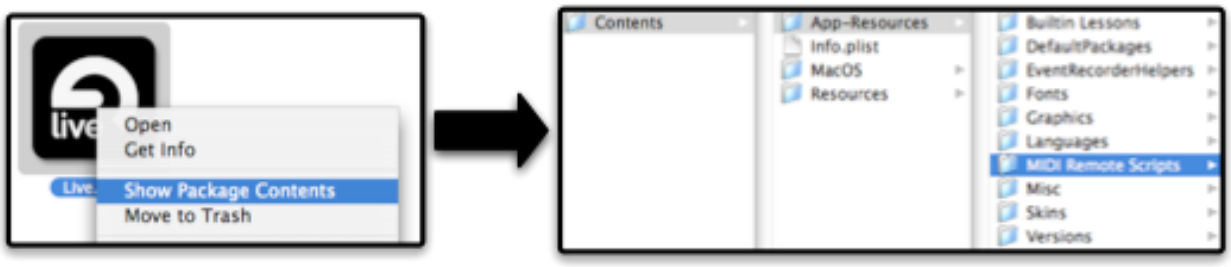
When in normal mode, turning the macro knob will send a CC message with the first CC number. Pressing down the macro knob and turning it will send a CC message with the second CC number. This way, you can for example scroll through scenes and tracks in Ableton Live.

MIDI Command Incoming MIDI Support

The Midi Command reacts to incoming MIDI CC messages and updates its parameter values accordingly. This way, annoying parameter discrepancy jumps are avoided when modifying parameters on the controlled gear. To achieve this, connect the MIDI OUT connector of the controlled gear or software to the MIDI IN connector of the Midi Command. Make sure that the controlled gear or software sends out the modified values. Midi Command only supports absolute CC messages.

Using the MIDI Command to control Ableton Live

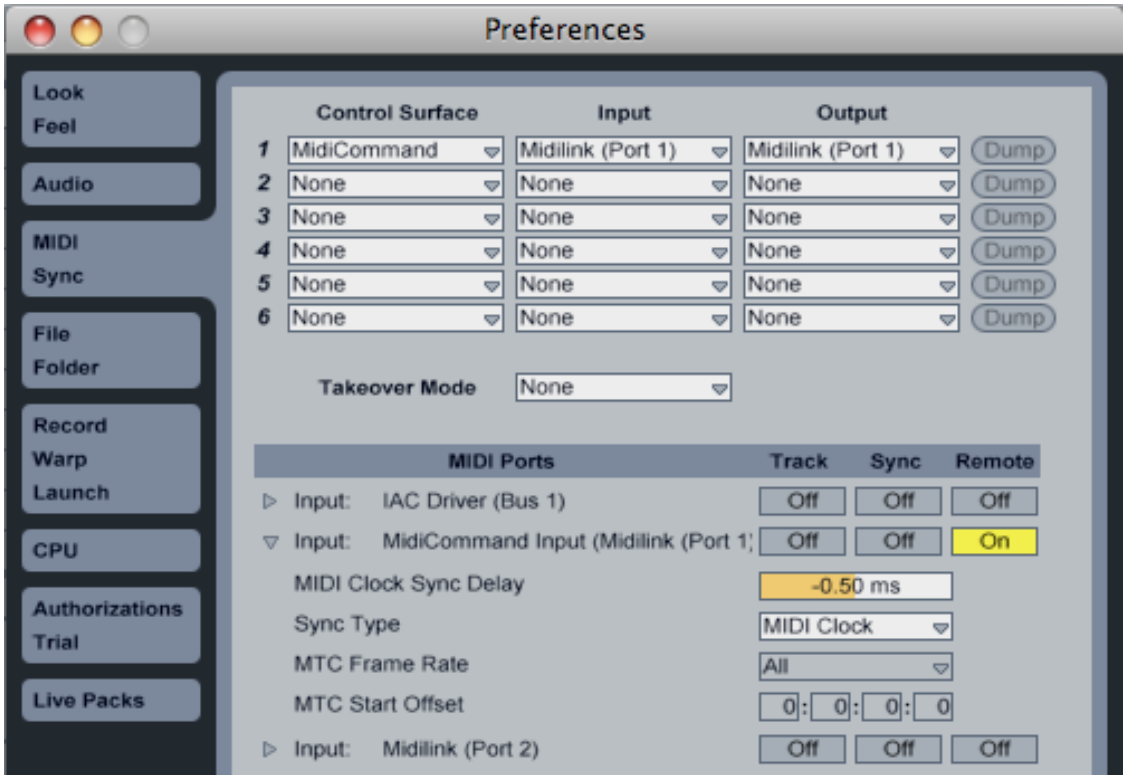
The MIDI Command comes with a remote control surface script for Ableton Live 5, 6 and 7. To install this script, download the installation files from http://ruinwesen.com/software/MidiCommand-AbletonScript.zip . Unzip the zip file and copy the folder “FCB1010” into the Ableton Live’s “MIDI Remote Scripts” folder. Under MacOSX, this folder can be found inside the Live.app bundle by right clicking on the “Live.app” file and choosing “Show Package Contents”:



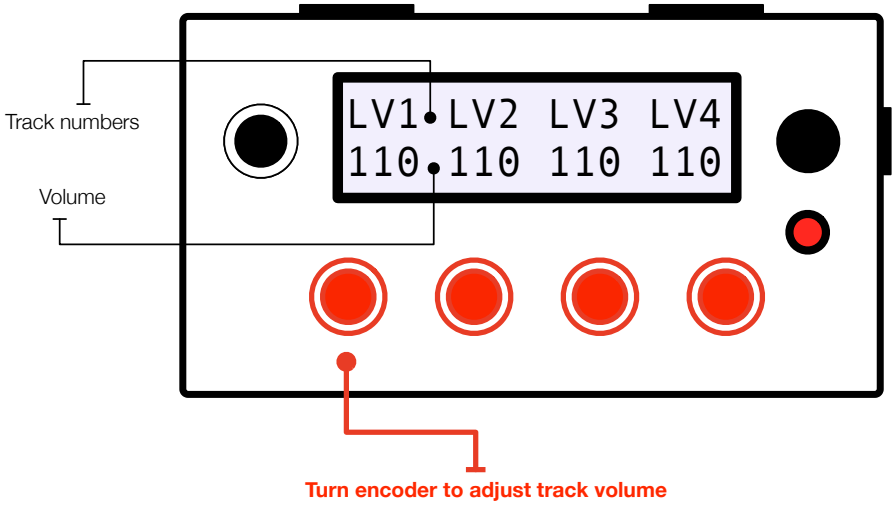
MacOSX Installation Folder

Under Windows, this folder is found in the Ableton installation directory (most often in “C:\Program Files\Ableton\”) in the folder “Resources”.

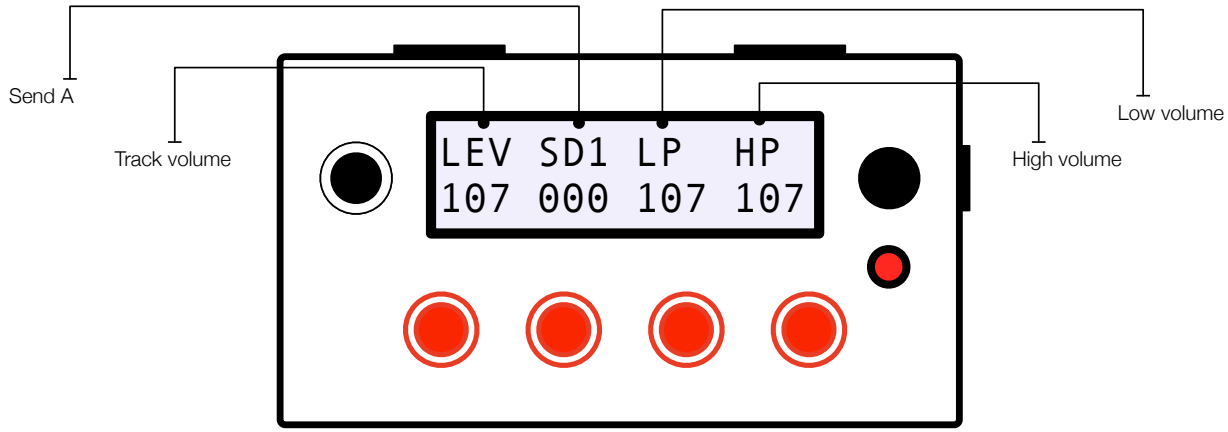
After the folder was copied, plug-in your MIDI Command, select patch 1 and connect it to your computer’s MIDI interface. Then start Ableton Live. Open up the preferences panel and go to “MIDI Sync” panel. Select “MidiCommand” as your control surface (if “MidiCommand” does not appear in the list, verify that you have copied the “MidiCommand” folder to the correct location as described above), and configure the input MIDI port and the output MIDI port accordingly. In this example I use the Port 1 of a MidiLink adapter.



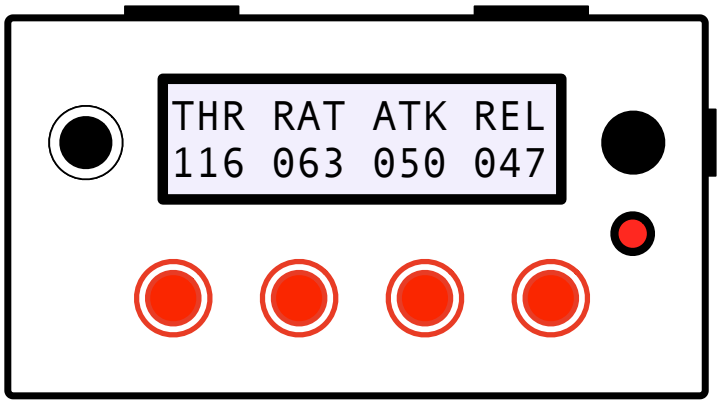
Once the correct input and output devices have been chosen, Ableton will update the parameter names on the Midi Command. The first page of patch 1 shows the volumes of the first 4 tracks:



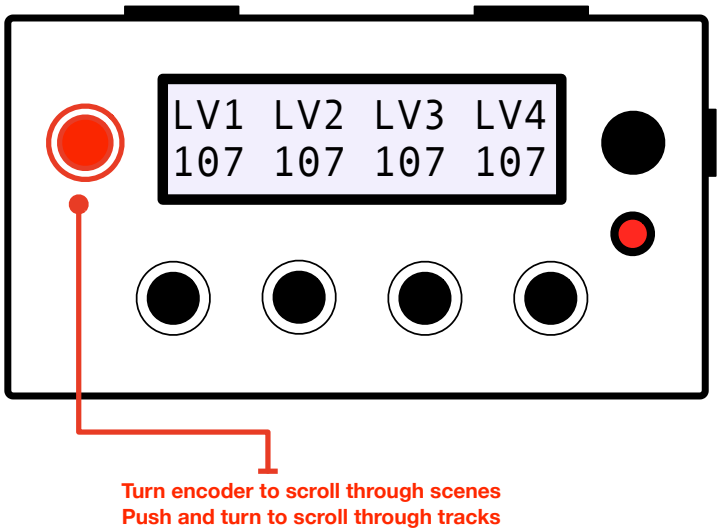
The second page of patch 1 shows parameters of the currently selected track. It allows you to control the current track's volume and the first send. Furthermore, if the track contains an EQ (either the 8 parameter EQ or the 3 parameter EQ), it allows you to control the volume of the low and high frequencies of the last EQ in the track.



The third and fourth page of patch 1 allow you to control the best-of bank parameters of the currently selected device. When selecting a device, the Midi Command flashes the name of the newly selected device and updates the parameter names accordingly. For example, when selecting a Compressor device, page 3 looks like the following picture:



Finally, the macro knob is used in its relative CC mode. Turning the macro knob will scroll through the scenes of your Ableton set. Turning the macro knob while pushing it down will scroll through the tracks (including the mastertrack).



The Ableton remote surface mappings use the first patch of the Midi Command. Make sure that patch 1 is selected. The remote surface mappings will not overwrite the saved patch 1 in the Midi Command memory. Changing the patch while using the Ableton surface mappings is not recommended because the Midi Command will be out of sync with the Ableton GUI.

Midi Command Sysex Reference

The Midi Command uses a number of sysex messages to support firmware flashing, patch backup and special features. It also can send sysex data to control Elektron's Machinedrum effect machines.

Common Messages

All sysex messages start with a common header:

Midi Byte	Purpose
0xF0	MIDI Sysex Start
0x00	Extended Vendor ID
0x13	Byte 1 of Vendor ID = 0x13
0x37	Byte 2 of Vendor ID = 0x37

When 8-bit data has to be sent over sysex, the following mechanism is used. 7 bytes of 8-bit data are converted into 8 7-bit sysex data bytes. The first of these 8 bytes contains the MSB of the following 7 bytes:

BYTE1 BYTE2 BYTE3 BYTE4 BYTE5 BYTE6 BYTE7 is converted to (0 MSB7 MSB6 MSB5 MSB4 MSB3 MSB2 MSB1) (BYTE1 & 0x7F) (BYTE2 & 0x7F) (BYTE3 & 0x7F) (BYTE4 & 0x7F) (BYTE5 & 0x7F) (BYTE6 & 0x7F) (BYTE7 & 0x7F).

16 bit values are encoded as either 3 or 4 sysex bytes, send with MSB first.

Midi Bootloader Messages

Midi Bootloader ACK message

Used to acknowledge a firmware page.

Midi Byte	Purpose
(Sysex Header)	
0x01	CMD = CMD_BOOT_BLOCK_ACK
0xF7	MIDI Sysex End

Midi Bootloader NAK message

Used to signal an error while flashing a firmware page.

Midi Byte	Purpose
(Sysex Header)	
0x10	CMD = CMD_BOOT_BLOCK_NAK
0xF7	MIDI Sysex End

Midi Bootloader Start Program message

Signal the Midi Command Bootloader to jump to the main program.

Midi Byte	Purpose
(Sysex Header)	
0x04	CMD = CMD_MAIN_PROGRAM
0xF7	MIDI Sysex End

Midi Byte	Purpose
(Sysex Header)	
0x10	CMD = CMD_BOOT_BLOCK_NAK
0xF7	MIDI Sysex End

Midi Bootloader Start Bootloader message

Signal the Midi Command to jump to invalidate the current firmware and start the bootloader. This will invalidate the current firmware and will require you to reprogram the firmware.

Midi Byte	Purpose
(Sysex Header)	
0x05	CMD = CMD_START_BOOLOADER
0xF7	MIDI Sysex End

Midi Bootloader Firmware Page message

Transmit a firmware page. The bootloader will flash this page into the firmware and answer with either an ACK or NAK message (see above). While programming the firmware, wait for ACK before sending the next page.

Midi Byte	Purpose
(Sysex Header)	
0x01	CMD = CMD_BLOCK_DATA_BLOCK
len	length of firmware page
address (4 bytes)	16 bit page address = address[0] << 21 | address[1] << 14 | address[2] << 7 | address[3]
firmware page (8-bit data)	Firmware page (max 64 bytes), 8-bit data encoded in sysex
checksum	XOR of all sysex bytes starting with the CMD byte
0xF7	MIDI Sysex END

Midi Bootloader Firmware Checksum message

Transmits the sum of all the firmware bytes, used by the Midi Command to check if the current firmware is valid.

Midi Byte	Purpose
(Sysex Header)	
0x03	CMD = CMD_FIRMWARE_CHECKSUM
firmware length (3 bytes)	16 bit firmware length= length[0] << 14 | length[1] << 7 | length[2]
firmware checksum (2 bytes)	14 bit firmware checksum = checksum[0] | checksum[1] << 7
0xF7	MIDI Sysex END

Midi Command Messages

Send Page message

This message is used to update a page (but not save it to the Midi Command's patch memory). If the page is in another patch than the current patch, this message has no effect.

Midi Byte	Purpose
(Sysex Header)	
0x11	CMD = CMD_SEND_PAGE
patch number	patch number of page (from 1 to 8)
page number	Page number (from 0 to 3)
page type	page type: 0 for MIDI page, 1 for MD Reverb page, 2 for MD Echo page, 3 for MD EQ page, 4 for MD Compressor page)
page data (8bit data)	8-bit encoded page data (see section "Page formats" below)
0xF7	MIDI Sysex END

Save Page message

This message is similar to Send Page, but the page is stored in patch memory.

Midi Byte	Purpose
(Sysex Header)	
0x14	CMD = CMD_SAVE_PAGE
patch number	patch number of page (from 1 to 8)
page number	Page number (from 0 to 3)

Midi Byte	Purpose
page type	page type: 0 for MIDI page, 1 for MD Reverb page, 2 for MD Echo page, 3 for MD EQ page, 4 for MD Compressor page)
page data (8bit data)	8-bit encoded page data (see section “Page formats” below)
0xF7	MIDI Sysex END

Get Patch message

This message is used to ask the Midi Command to send a patch over MIDI. The Midi Command will respond by sending 4 SEND_PAGE messages (see above) with the content of the patch.

Midi Byte	Purpose
(Sysex Header)	
0x13	CMD = CMD_GET_PATCH
patch number	patch number (from 0 to 7)
0xF7	MIDI Sysex END

Switch Patch message

This message is used to ask the Midi Command to load a patch from patch memory.

Midi Byte	Purpose
(Sysex Header)	
0x12	CMD = CMD_SWITCH_PATCH
patch number	patch number (from 0 to 7)
0xF7	MIDI Sysex END

Set Flash message

This message is used to make the Midi Command flash 2 lines of text on its display..

Midi Byte	Purpose
(Sysex Header)	
0x15	CMD = CMD_SET_FLASH
flash data (32 8-bit bytes)	two times 16 bytes, one for the upper row of the LCD, one for the lower row of the LCD
0xF7	MIDI Sysex END

Midi Command Page Format

This section documents the format of page data in memory. This format is also used when sending page data over sysex.

Midi Page format

Byte	Purpose
CCs (4 bytes)	CC number for each encoder
Channel (4 bytes)	Channel number for each encoder
Macro (8 times 2 bytes) = lower boundary (1 byte), upper boundary (1 byte)	Lower and upper boundaries for the macro knob
Names (4 times 4 characters)	Name of each encoder (4 chars)

MachineDrum Page format

This format is used for all the 4 types of MachineDrum pages.

Byte	Purpose
Parameter number (4 bytes)	The parameter number of the parameter on the effect page
Unused (4 bytes)	Unused bytes
Macro (8 times 2 bytes) = lower boundary (1 byte), upper boundary (1 byte)	Lower and upper boundaries for the macro knob

Midi Command Schematics